

System And Method Of Operation Of An Embedded System For A Digital Capacitance Diaphragm Gauge

Abstract of Disclosure

Systems and methods for digitally controlling sensors. In one embodiment, a digital controller for a capacitance diaphragm gauge is embedded in a digital signal processor (DSP). The controller receives digitized input from a sensor AFE via a variable gain module, a zero offset module and an analog-to-digital converter. The controller automatically calibrates the received input by adjusting the variable gain and zero offset modules. The controller also monitors and adjusts a heater assembly to maintain an appropriate temperature at the sensor. The controller utilizes a kernel module that allocates processing resources to the various tasks of a gauge controller module. The kernel module repetitively executes iterations of a loop, wherein in each iteration, all of a set of high priority tasks are performed and one of a set of lower priority tasks are performed. The controller module thereby provides sensor measurement output at precisely periodic intervals, while performing ancillary functions as well.